Industrial SPDES Permit Fact Sheet

Fleischmann's Vinegar Company, Inc.
SPDES Permit No. NY0022585, DEC ID: 8-5438-00001/00001
Permit Writer: Percival Miller, January 31, 2013

I. SUMMARY OF PROPOSED PERMIT CHANGES

A State Pollutant Discharge Elimination System (SPDES) permit EBPS Department-initiated modification is proposed. The following summarizes proposed changes within the draft permit, compared to the currently effective permit. Details of the changes are specified below, and in the draft permit:

- Special Conditions - Best Industrial Management Practices.
- Flow and Site Layout diagrams.
- Addition: Outfall 003: Non-contact cooling water, plus Stormwater.
- pH monitoring: Outfall 003.
- Addition: Outfall 004: Rainfall runoff collection from buildings, drained to subsurface tile field. Flow monitoring not required in permit – operation under SWPP guidelines.
- UOD, 42 mg/l: for the effluent discharge period, at Outfall 001.
- pH: 6.5 – 8.5, revised from 6.0 – 9.0; Outfall 001.
- Outfall 004, Site drainage to tile fields: added.

Note that Department update of a permit typically includes updated forms, with the latest general conditions.

II. BACKGROUND INFORMATION

As noted throughout this document, SPDES permits are based on both federal and state requirements - law, regulation, policy, and guidance. These can generally be found on the internet. Current locations include: Clean Water Act (CWA) *www.epa.gov/lawsregs/laws/index.html#env*; Environmental Conservation Law (ECL) *www.dec.ny.gov/regulations/40195.html*; federal regulations *www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR*; state environmental regulations *www.dec.ny.gov/regulations/regulations.html*; NYSDEC water policy *www.dec.ny.gov/regulations/2654.html*.

A. Administrative History

The current SPDES permit for the facility became effective on 10/31/2007 and has an expiration date of 10/31/2012. The Department has initiated a modification to the facility's SPDES permit, pursuant to 6 NYCRR Part 750-1.18 & 750-1.19, which is the priority ranking system known as New York State's Environmental Benefit Permit Strategy (EBPS). The facility has a current EBPS score of 110. In response to the Department's December 19, 2011 Request for Information, the permittee provided a SPDES NY-2C permit application and sampling data on 10/11/2012 (date received), and 10/16/2012.

B. Outfall and Receiving Water Information

The facility discharges, or proposes to discharge, wastewaters as detailed below, and stormwater, to waters of the State, via the following outfalls and at the noted locations (as described in the SPDES permit application):

Outfall	Latitude/Longitude	Discharge Description	Receiving Water
01D[1]	Internal Sampling for flow discharged to Outfall 001	Outflow described below; sampled at outflow from Holding Pond No.2.	Trib. to Beaver Creek
001	43°10'37.83"/76°52' 58.43"	Mix of: treated spillage into plant drain system; of vinegar and fruit juices, ethanol, wine; stormwater; cooling tower, boiler and heat loop blow downs.	Trib. to Beaver Creek
002	43°10'36.81"/76°53' 10.82"	Sanitary wastewater to septic tank leach field.	Groundwater, Class GA
003	43°10'35.56"/76°52'59.07"	Non-contact cooling water, plus stormwater.	Trib. to Beaver Creek
004	43°10'37.15"/76°53' 02.63"	Site surface water, drained to groundwater via the drain tile system north of main plant.	Trib. to Beaver Creek

Locations of the Outfalls and names, classifications, and Water Index Numbers of the receiving waters, are indicated above and/or in the table *Outfall & Receiving Water Locations*, at the end of this Fact Sheet. Surface water classifications are as specified in 6 NYCRR Parts 800 – 941. The best uses, and other requirements applicable to the specific water class (D and C, and intermittent, are specified in 6 NYCRR Part 701, as:

> "6 NYCRR § 701.8, Class C fresh surface waters: The best usage of Class C waters is fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes."

Stream Water Quality

Sample tests of water in the Tributary to Beaver Creek, and in Beaver Creek itself, provided the following:

Hardness, as $CaCO_3$:

- Tributary to Beaver Creek: 290mg/l
- Beaver Creek: 340 mg/l

Allowed Discharge Periods for the Receiving Water

The facility effluent discharge has in the past been restricted to the months when stream flow was considered sufficient for safe releases from the final Holding Pond (#3). The discharge period, March through April, was established by the Department for a water quality review of an earlier permit, which considered waste assimilation capacity of the Tributary. The existing discharge period has been described by the operator in the permit application and in the response to the EBPS request as restrictive of discharge capacity and unrelated to current production at the facility. The present permit application requests reconsideration of the window for Outfall 001 discharges. Discussion of this issue is provided in this Fact Sheet, and in Note 1 of this document.

Critical Flow in the Tributary to Beaver Creek

The existing 7Q10 flow of 0.45 cfs for the receiving water (a tributary of Beaver Creek, Class C) had been obtained from the NYSDEC water quality review of July 1992 (Memorandum, Terry Olmsted, July 1992). The 30Q10 flow had been obtained from the same source; and from a multiplier of 1.2 of the 7Q10 flow. For this permit, the critical flow was assumed to be intermittent, which is in accord with the conclusion that this

Tributary is a minor headwater (watershed) of Beaver Creek, Class C; and with the Tributary's reported intermittencies.

Mixing zone analyses were conducted in accordance with the following documents: EPA T.S.D, entitled "Water Quality Based Toxics Control," dated March, 1991; EPA Region VIII "Mixing Zones and Dilution Policy", dated December, 1994; NYSDEC TOGS 1.3.1, entitled "Total Maximum Daily Loads and Water Quality Based Effluent Limits." Critical receiving water data for Temperature, pH, hardness and/or salinity are based on the most recent (2005) water quality reviews for this permit. Effluent discharge information is provided below and in the Pollutant Summary Table at the end of this fact sheet. The Table also includes ambient water quality criteria, ambient background information (as available), and pollutant discharge data for all outfalls.

Description of Outfall Flows and Sources

Ethanol, fruit juices, cider, and vinegar spillage are generated year-round. The drain system within the head works of the facility allows the collection of spillage and discharges. This (raw) flow first passes through a screen house for filtration (reduction) of particulates and the outflow, to which excess stormwater is added, is stored in successive aerated ponds. The last of these ponds (Holding Pond #3) is used to retain flow for discharge only during the approved period, as noted above.

Treatment System

(1) Flows from vinegar production. This raw wastewater influent from processing is combined with influent stormwater and to the screen house; where large particles are removed. For the raw influent, the following are monitored, via grab samples, for: Flow, pH, Settleable Solids, and TSS.

(2) Inflow to Aeration Basin #1, is monitored via grab samples at the basin (Outfall 01B). The parameters monitored for Aeration Basin #1 are: Dissolved Oxygen, pH, Settleable Solids, and TSS.

(3) Flow out of Aeration Basin #1 is directed to Aeration Basin #2, which is monitored via grab samples at the basin (Outfall 01C). Parameters monitored are: Dissolved Oxygen, pH, Settleable Solids, and TSS.

(4) Flow out of Aeration Basin #2 is directed into Holding Pond #3 which is monitored via grab samples at the basin (Outfall 01D). Parameters monitored are: BOD_5, TKN, pH, Total Phosphorous, Settleable Solids, and TSS.

(5) Controlled discharge from Holding Pond #3 (March, April only) is released into the (intermittent stream) Tributary to Beaver Creek (Water Index No. Ont. 82) through Outfall 001. The parameters monitored are: Flow, BOD_5, pH, and TSS.

Sanitary Wastewater Management

Sanitary wastewater flows via monitored Outfall 002 to a septic tank system with a subsurface drain field. The parameter monitored is: Flow.

Non-Contact Cooling Water

Cooling water flows, with stormwater, are released to the Tributary, through Outfall 003.The parameter monitored is: Temperature.

Surface Water Drainage

Rainfall from a site building is drained via a 4-inch grate, to an onsite subsurface tiled drain field; where it recharges to groundwater. This discharge had not been monitored in the past. The Department has recommended that this drainage be noted on the new permit as Outfall 004. Since there is no monitoring

equipment for this drainage, and the discharge is not expected to have any significant impact on groundwater quality, no monitoring and reporting of flow has been recommended. Estimation can be used in place of a monitoring device.

Impaired Waterbody Information

The Clean Water Act requires US states to identify impaired waters where the designated uses are not fully supported. For these impaired waters and identified pollutants, the states must consider development of a Total Maximum Daily Load (TMDL) protocol, or other strategy, to reduce inputs of the specific pollutant(s) that restrict waterbody uses. The Department's 2007Priority Waterbody listing at (http://www.dec.ny.gov/docs/water_pdf/pwllontcent.pdf) includes that Beaver Creek and Minor Tribs. (Watershed Number 0302) are 'Unassessed.' Therefore for this Fact Sheet the impairment status of the receiving water, Tributary to Beaver Creek or Beaver Creek itself, cannot be provided. The un-assessed impairment status of Beaver Creek means that no conclusions from TMDL developments are available.

C. Discharge Composition

The *Pollutant Summary Table* at the end of this Fact Sheet presents the existing effluent quality for the facility. Concentration and mass data presented are based upon Discharge Monitoring Reports (DMR) for 7/31/2009 through 9/30/2012; the permit application; and other data as submitted for the permit application. The statistical methods used for the calculation of 95th and 99th percentiles are in accord with TOGS 1.2.1, and with the USEPA, Office of Water, Technical Support Document For Water Quality-based Toxics Control, March 1991, Appendix E. Statistical calculations were not performed for parameters with insufficient data. Ten or more data points are typically needed for calculation of percentiles (TOGS 1.2.1 Appendix D). The monitoring data values for parameters at Outfalls 001-003 exceeded ten; therefore the 95th and 99th percentiles shown in the Pollutant Summary Table at the end of this Fact Sheet, could be calculated. Where values were less than ten, arithmetic values of average and maximum were used Non-detects were excluded from statistical calculations.

D. Compliance History

A review of the facility's DMRs and other compliance information from 7/2009 through 9/2012 showed no reported violations of limits at Outfall 001 (effluent) or at Outfall 003 (temperature of cooling water). There was a single flow violation (15,987 GPD vs. the (design) limit of 1,000 GPD, on 8/2011, at Outfall 002 (sanitary).

III. PROPOSED PERMIT REQUIREMENTS

Sections 101, 301(b), 304, 308, 401, 402, and 405 of the CWA provide the basis for the effluent limitations and other conditions in the draft permit. The NYSDEC evaluates discharges with respect to these sections of the CWA, New York State ECL, and the relevant federal/state regulations, policy, and guidance to determine which conditions to include in the draft permit.

For existing permittees the previous permit provides a basis for the next. Permit revisions are implemented where justified due to changed facility conditions and/or in response to updated regulatory requirements.

A. Effluent Limitations

If applicable, existing permit limits are evaluated to determine if these should be continued, revised, or deleted. Existing limits are continued unless there is justification to do otherwise. Other pollutant monitoring data are also reviewed to determine the presence of additional contaminants that should be included in the permit.

The permit writer determines the **technology-based effluent limits (TBELs)** that must be incorporated into the permit. A TBEL requires a minimum level of treatment for industrial point sources based on currently available treatment technologies and/or Best Management Practices (BMPs). The Department then evaluates the water quality expected to result from technology controls to determine if any exceedances of water quality criteria in

the receiving water might result. If there is a reasonable potential for exceedances to occur, **water quality-based effluent limits (WQBELs)** must be included in the permit. A WQBEL is designed to ensure that the water quality standards of receiving waters are being met. In general, the Clean Water Act requires that the effluent limits for a particular pollutant are the more stringent of either the TBEL or WQBEL.

B. TBELs & Anti-Backsliding:

Section 301(b) and 402 of the CWA require technology-based controls on effluents. A TBEL is set based upon an evaluation of New Source Performance Standards (NSPS), Best Available Technology Economically Achievable (BAT), Best Conventional Pollutant Control Technology (BCT), Best Practicable Technology Currently Available (BPT), and Best Professional Judgment (BPJ). BPJ limits may be set using any reasonable method that takes into consideration the criteria set forth in 40 CFR 125.3.

Categorical and Other Limitations

BPT, BCT, BAT and NSPS limitations are mainly based upon effluent guidelines developed by USEPA, for specific industries. For this facility, the effluent guidelines of SIC Code 2099, Food Preparations category; *e.g.*, BCT loadings of lbs/year for BOD_5 and TSS; would be required under 40 CFR 407.12. The effluent limitations guidelines (ELGs) for SIC Code 2099 that apply to vinegar production has at its basis the tons of raw materials used to generate the product; *e.g.*, tons of apples/day/1000 gallons; however the facility no longer uses raw product; therefore the ELGs of 40 CFR 407.12 would not apply, for this permit.

The facility's current permitted annual BOD_5 and TSS loadings are:

- BOD_5, Annual average, mass loading: 4,393 lbs/year.
- TSS, Annual average, mass loading: 3,875 lbs/year

In addition, discharge types and rates were reported with the SPDES permit application: discharges are at batch frequencies during a prescribed period: March 01 through April 30. The discharge rate for this period is stated as a long-term average of 92,000 gpd, and a daily maximum of 100,000 gpd; for total of 5.5 million gallons over the allowed 60-day period. Process wastewater and other flows making up the discharge are as follows:

Discharge Type	Source	Rate	Units
Process Wastewater	Non-Contact Cooling Water	200	Gallons per Month
Process Wastewater	Boiler Blowdown	25	Gallons per Month
Process Wastewater	Stormwater	23,000	Gallons per Month
Other	Ethanol, Juice, Cider, Vinegar Spillage within plant; to drain	250	Gallons per Month

40 CFR 136 water quality regulations are used to develop requirements for Flow, pH, BOD5, TSS, Settleable Solids, TKN, and Total Phosphorous. Specific limits are identified below and in the *Summary Table* at the end of this fact sheet.

For facilities that are subject to effluent guidelines and have substances in their discharges that are not explicitly limited by the regulations, or for industrial sectors for which there are no applicable effluent guidelines in 40 CFR 402-471, the permit writer is authorized to use BPJ in developing TBELs. The authority for BPJ is contained in Section 402(a)(1) of the CWA, which authorizes the Department to issue a permit containing "such conditions as the Administrator determines are necessary to carry out the provisions of the Act." The NPDES regulations in 40 CFR 125.3 state that permits developed on a case-by-case basis under Section 402(a)(1) of the

CWA must consider: The appropriate technology for the category class of point sources, of which the applicant is a member based on available information; and any unique factors relating to the applicant.

Anti-backsliding requirements are specified in CWA Sections 402(o) and 303(d)(4); and in the regulations of 40 CFR 122.44(l). These requirements are summarized in TOGS 1.2.1; and in general prohibit the relaxation of effluent limits in reissued permits, unless one of the specified exceptions applies. In practice, limits in reissued permits will be no less stringent than previous permit limits, to ensure compliance with anti-backsliding requirements. Otherwise, specific exceptions that allow backsliding are cited on a case-by-case basis.

Category-Specific Parameters

The indicated industrial activity classification for the facility is SIC Code 2099, Food Preparations. The pollutants associated with this category from sampling studies are noted in federal requirements (Federal Register Vol. 60, no. 189, September 1995; Sector U, Food and Kindred Products Facilities-Miscellaneous Food Preparations and Kindred Products, Table U-10): BOD_5, COD, Nitrate + Nitrite Nitrogen, TKN, Oil & Grease, pH, Total Phosphorous, Total Suspended Solids. Monitoring information for the facility is as follows:

Monitoring Information – July 2009 through September 2012 (Average Values)

Parameters	Fleischmann's Vinegar Company – Processing Flows into Outfalls***										Existing Limits**	
Monitoring & Reporting	Holding Pond #3 to Creek*		Into Holding Pond #3		Into Aeration Basin #2		Into Aeration Basin #1		Raw Influent to Screen House			
	001		01D		01C		01B		01A		At Outfall 001	
	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
Flow, MGD	0.167	0.170							0.226	0.45	M	0.1
BOD_5, mg/l	14.6	39.1	124.5	304.5							100	150
BOD_5, lbs/day	16.4	51									M	M
BOD_5, lbs/month	92.3	163									M	M
BOD_5, Avg., lbs/yr	417	1160									M	M
Dissolved O_2, mg/l					19.15	25.45	50.6	104.1				
TKN, mg/l			26.45	32.5								
Settleable Solids, mL/L			3.58	6.47	307	1186	658.5	1861	26.85	72.15		
pH, SU, Min/Max	7.3	8.0	12.9	15.9	14.85	19.65	12.3	15.0	9.6	12.1	6.0	9.0
Total P, mg/l			12.95	17.25								
TSS, mg/l	15.2	45.7	168	411.6	1969	4774	1901	3885	592	1764	50	75
TSS, lbs/day	284	968									M	M
TSS, Avg., lbs/yr	602	1162									M	M

* Tributary to Beaver Creek. ** Limits at Outfall 001, previous permit. ***Flow direction in table: Right to Left.
Notes: M = Monitor. Effluent flow is not monitored for Oil & Grease.

The following provides an assessment of TBEL & Anti-backsliding, for each pollutant present in the discharge(s). A summary of analyses is provided in the *Pollutant Summary Table* (end tables) of this fact sheet.

Pollutant-Specific TBEL & Anti-Backsliding Analysis:

Flow and In-Plant Storage of Effluent: The previous flow limit was 0.1 mgd, maximum. The facility has been limited to discharge only during March and April. This limit had been based upon a previous water quality review including consideration of months when flow within the receiving water would be sufficient that the dissolved oxygen requirement would be met. Therefore the tabulated influent vs. outflow information below reflects only in-system flow storage and releases. For 2010 and 2011, raw influent flows (process water plus stormwater) through the screen house for reduction of particulates, are from monthly reporting data in the

State's DMR database; and shown at average and maximum values of 1.041 and 0.280 million gpd. For 2009, the monthly influent totals for a preceding incomplete 3-yr. record indicate a higher total raw influent; while the months of 2012 indicate a lower flow total. Statistical analysis (lognormal) of stormwater/raw wastewater inflow through Outfall 01A for the 38-month period August 2009- September 2012, indicates significant variability in the raw influent to the screen house; though all discharges are reported as kept below 1.0 mgd.

2009-2012: Raw Inflow to Screen House through Outfall 01A	Range				Maximum Discharge Limit, Two Months/Yr*	Calculated in-Plant Storage, MGD
	Average Flow		Maximum Flow			
	Monthly	Annual	Monthly	Annual		
Average	19,488	7,113,210	54,714	19,970,610	5,520,000	NA
Median	7,537	2,751,000	32,685	11,930,030	5, 520,000	NA
95th Percentile	71,886	26,238390	280, 550	102,400,750	5,520,000	NA
99th Percentile	189,771	69,308,760	810,128	295,696,720	5,520,000	NA
UNITS	GPD	Gallons/Year	GPD	Gallons/Year	Gallons	

* March and April, 60 days at a LTA of 92,000 gpd maximum.

Treated Flow Management - Permittee's Request

The permittee mentioned that TSS concentrations during the allowed discharge 'window' of March-April can be elevated due to thermal effects from warm air temperatures. The thermal effects (particulate re-suspension related to pond water turnover or upwelling) were important as they affect the treated effluent stored within the final Holding Pond (No. 3), which discharges to Outfall 001. This thermal effect is indicated as irregular in occurrence; but sometimes happens during the March-April discharge period. When it occurs, and if TSS within the pond is above the limit, the facility withholds discharges, which can reduce actual total discharge during the allowed period. The permittee has stated, in the permit application and later communication, that the following considerations are requested (Communication, E. Murphy, PE, 11/28/2012):

(a) Increase or deletion of the current discharge window for Outfall 001: the data (effluent quality and rate) does not support the current narrow window for effluent discharge;
(b) Expedition of the new permit using existing permit limitations if need be;
(c) Increase of the daily discharge from Outfall 001; from 100,000 gpd to 120,000 gpd; or from 100,000 gpd to 150,000 gpd; to allow the facility greater flexibility to remove stored effluent within a shorter amount of time, if the need so arises (*e.g.* TSS increases due to upwelling in the ponds);
(d) Increase of the annual discharge cap, from the current 5.5 million gallons, to 6-8 million gallons per year: this would allow operational flexibility; and allow possible increased capacity.

The permittee also noted in communication that concerns over meeting the receiving water's discharge limitations might no longer apply, as production and effluent quality had changed considerably since the last permit review. For the Tributary to Beaver Creek the permittee noted, and previous analyses indicate, that flow is intermittent, with the 'ditch' sometimes dry and with the only flow noted being effluent.

The existing BOD_5 limitations are 100 mg/l daily average and 150 mg/l daily maximum; and are based upon the review. However the Tributary to Beaver Creek is a headwater, with noted reports of intermittency during drier periods of the year. As an alternative approach, water quality reviews of 7/1994 and (6/2005) developed UOD limitations in consideration of the likely intermittent conditions and lack of long-term stream flow data.

Water quality analysis or waste allocation capacity (WAC) estimations for this permit re-examined the limitations requirements based upon long-term and seasonal monitoring data for the discharge; and also included evaluation of the permittee's request for reconsideration of increased discharge capacity through either

(a) increasing the months during which safe releases could be made from the effluent storage lagoon (Holding Pond No. 3); or (b) for the currently allowed discharge period (March and April), an increased daily discharge rate from the current 100,000 GPD to 120,000 to 150,000 GPD. The permittee's request, also made in a previous permit application, indicated that the limited seasonal discharge period constrained current and future operational capacity.

Examination literature and communication with the USGS on possible approaches to establishing a credible flow regime for the receiving tributaries, confirmed that there was no reliable information or methods to determine critical flows, since no stream gauges were near enough, no flow statistics were available for the Beaver Creek watershed; and the relative size of the Tributary's minor watershed (about 0.3 sq. miles area, 0.9 miles length) compared with Beaver Creek (12 sq. miles, 9.1 miles length) made relative area methods subject to unreliability. In the absence of either long-term annual base or seasonal flow data, no critical flow assumption could be made. Therefore stream condition was treated as intermittent, or with critical stream flow at 7Q10 = 0 cfs.

This also meant that the permittee's requests for reconsideration of rate or duration limitations for the discharge could not be addressed through the traditional approach, as long as essential stream flow data was not available.

Allowable discharge vs., water quality

Allowable discharge quantity and quality are important factors due to the Tributary's flow characteristics. Past water quality reviews have addressed these issues in various ways, but stream flow conditions vs. allowable discharges remain essential to water protection. Allowable technology-based effluent limitations (TBELs) are discussed in this section; water quality-based limitations are discussed in the next section of this Fact Sheet.

Flow: The flow measurement requirement is retained for treatment system Outfalls 01A and 001; raw influent, and final discharge, respectively; and for Outfall 002-Sanitary Wastewater to Leachfield. Flow monitoring via estimation, for Outfall 003 – Non-Contact Cooling Water plus Stormwater is recommended; as adequate to protect receiving water quality. Flow monitoring for Outfall 004 – Rainfall runoff from site roofs (sheet flow) is not recommended; operational requirements according to SWPPP are to be applied.

pH. Discharge monitoring information for releases to the Tributary of Beaver Creek indicated an effluent pH range of 7.1 – 8.2 standard units (SU), over 38 months. For the final Holding Pond (No. 3) just upstream of Outfall 001, which releases stored/aerated effluent in March through April, pH was reported as from5.3 to 9.4 SU. 6 NYCRR § 703.3, Class C surface (fresh), waters requires that pH be 6.5-8.5.The pH guidelines of TOGS 1.3.1- Total Maximum Daily Loads and Water Quality-Based Effluents, Item 5, pg. 8: Principles and Considerations for Waste Assimilation Capacity and Waste load Allocations, for effluent discharges to streams with little or no flow for dilution and for with intermittent flow; states that the applicable pH range should be that of the surface water classification. Therefore the TBEL-based allowable pH range has been revised within this Fact Sheet to 6.5 - 8.5 SU.

Dissolved Oxygen (DO): Outfall 001 discharges into Tributary to Beaver Creek, which is likely a 2nd order tributary of Beaver Creek according to the USGS mapping. TOGS 1.3.1 recommends that for intermittent streams, the allowable BOD_5 representing best treatment possible should be 5.0 mg/l. This indirectly raises the issue of meeting the minimum dissolved oxygen allowable during discharges, which according to 6 NYCRR § 703.3, Class C surface waters, is 4.0 mg/l. However since discharges into the Tributary are not to be continuous; or will only occur during periods when stream flow is adequate (March and April), the TOGS1.3.1 guideline would not apply.

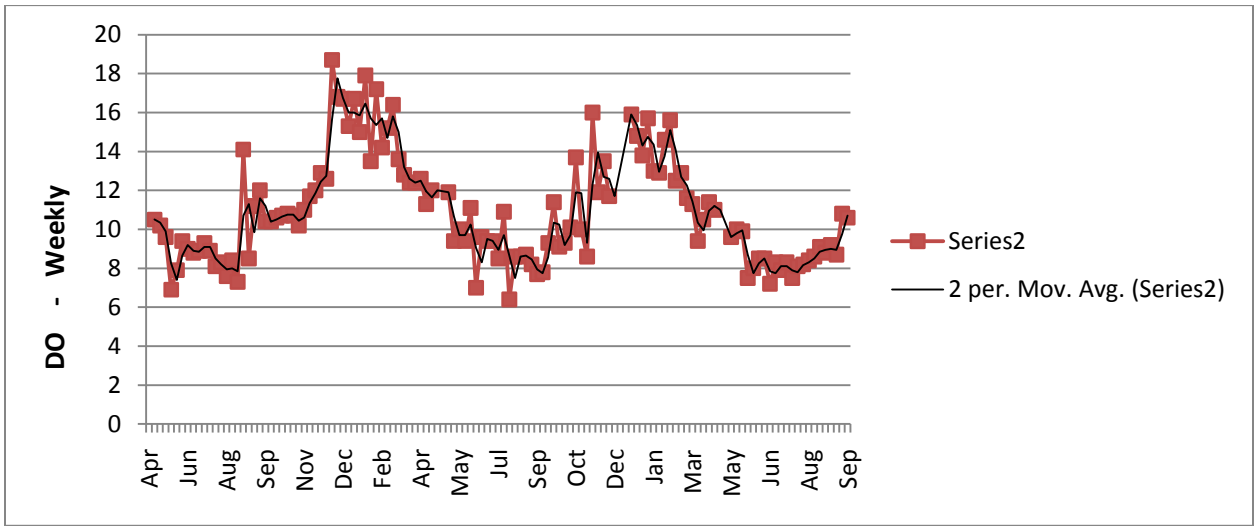
Dissolved Oxygen (DO) has not been monitored at Outfall 001 in the past, but has been measured from grab samples at Holding Pond #3 (Outfall 01D). At Outfall 01D, the reported concentrations range is 6.4 mg/l to

18.7 mg/l, with the 95th percentile (log-mean value) DO at 13.2 mg/l (for July and August 2012). Submitted permit application information has also indicated a DO value of 10.0 mg/l, at Outfall 001. The previous water quality review (6/2005) indicated that DO for the facility's discharge was approximately 11.3 mg/l. The mean value reported indicates the effluent DO near or at 'saturation,' based upon calculation methods for DO at the discharge's surface water elevation (387 ft.). DO at saturation is discussed under the WQBELs development section. Basic corrections for DO saturation at site elevation above mean sea level are for a critical summer temperature of 25 ºC.

Final Holding Pond (#3) DO values are subject to the same thermal effects as TSS. If holding pond water is deep enough and surface temperatures are above 80 deg. F, upper water layers can warm up and thus undergo DO reduction. Heavy rains, a cold front, or significant cold water inflow during the same period can cause cooling and sinking of the upper layers; resulting in rising of the lower, less oxygenated layers[1]. This suggests the vulnerability of aerated holding ponds to thermal and other effects. For the facility pre-discharge DO ranges are however the most likely indicators of any significant DO variation.

The chart below (Dissolved Oxygen vs. Month of Year), from 127 weeks of weekly monitoring data, shows that for the final holding pond (No. 3) the lowest DO values for the effluent stored are associated with late May through early September weeks; and suggests that the stored effluent should have DO levels at 9-10 mg/ during the allowed March-April discharge period. This consideration was incorporated in the water quality analysis.

Dissolved Oxygen in Holding Pond #3 (April 2009-Sept. 2012) vs. Weeks of Year



5-Day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$): Monitoring for $CBOD_5$ is recommended as a TBEL limitation, to assist monitoring of Ultimate Oxygen Demand (UOD).

Total Kjeldahl Nitrogen (TKN): The maximum TKN reported for 4/2010 through 9/2012 was 45 mg/l. A value near this maximum was assumed for water quality review, for nitrogenous oxygen demand in the receiving water. TKN monitoring at Outfall 01D is retained as protective of the receiving water. TKN monitoring at (final) Outfall 001 is useful if to confirm that DO requirements are met for unexpected conditions.

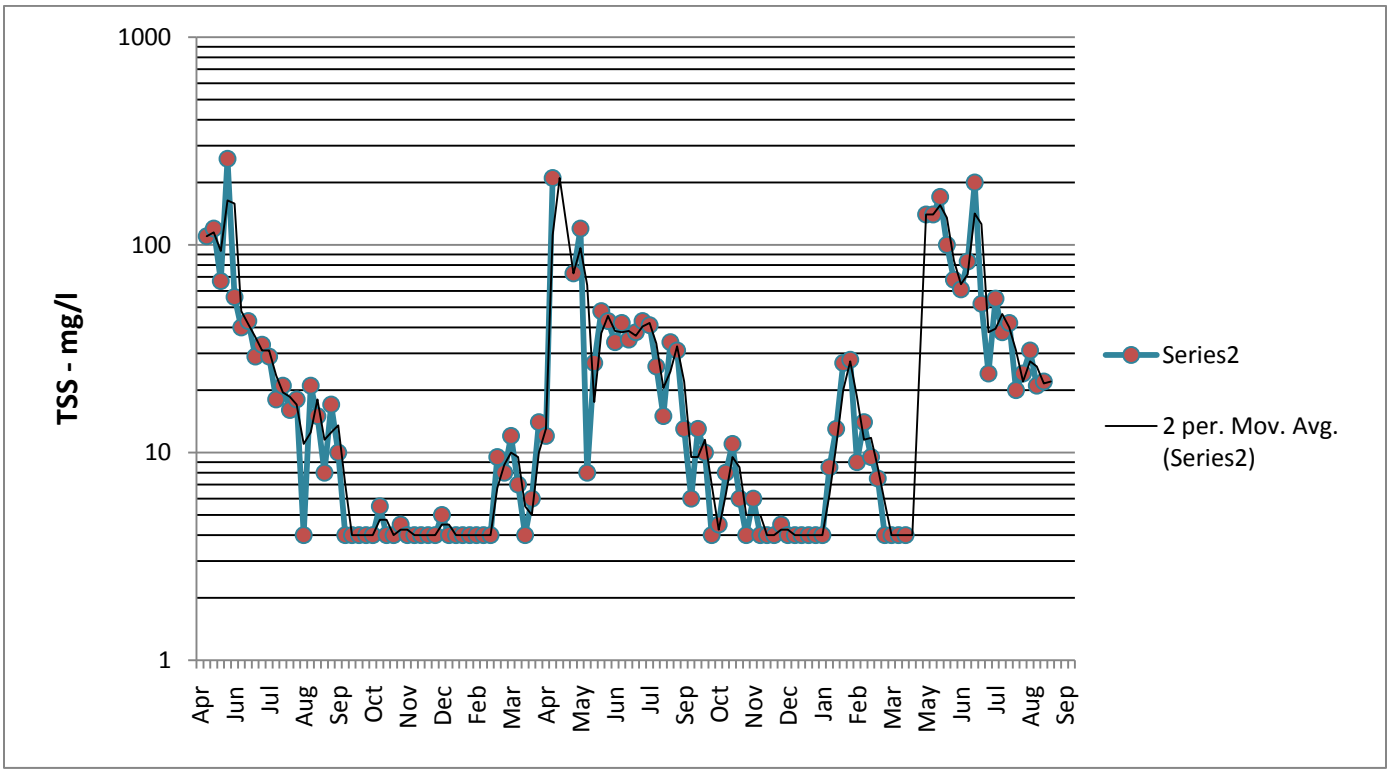
[1]Low Oxygen and Pond Aeration –Update (Wurts, W. A. 1993; Dealing with oxygen depletion in ponds). William A. Wurts, Senior State Specialist for Aquaculture, Kentucky State University Cooperative Extension Program; World Aquaculture, 24(2): 108-109.

Ammonia as NH_3-N: Monitoring of Ammonia (ammonium ion) is not required.

Settleable Solids, Internal Outfalls 01A, 01B, and 01C: Raw influent Settleable Solids concentrations were 28-79 mL/L for grab samples. At Holding Pond #3, before Outfall 001; measured concentrations were 5-8 mL/L; suggesting possible in-system reductions of 82-90%. The TBEL of 0.1 mg/l is retained as protective of water quality. Monitoring of Settleable Solids for influent for aeration units 1 and 2 (Outfalls 01B and 01C), and for final Holding Pond #3 (Outfall 01D) are retained as a limitation and to track performance.

Phosphorous, Total, Outfall 01D – Holding Pond No. 3: Monitoring of Phosphorous, Total, Monthly Average and Daily Maximum at Holding Pond #3; is retained, and is in conformance with requirements of the receiving water (Beaver Creek), for which the watershed discharges into the Great Lakes (Lake Ontario) .

Total Suspended Solids (TSS) Internal Outfalls and Final Outfall 001.TSS in the facility's raw influent (to the screen house for filtration ranges from 412 mg/l to 2,680 mg/l. At Holding Pond #3 outfall 01D, weekly grab samples for the period 4/2009-9/2012 indicates TSS at 41 mg/l to 371 mg/l. This suggests reductions of 87-90% within the wastewater management system. At Outfall 001 and for the same period, average and maximum monthly TSS values were 30.5 mg/l and 129 mg/l. The possible thermal effects of pond turnover in Holding Pond #3 on TSS levels at Outfall 001, noted by the permittee as potentially causing delays even during the allowed discharge, are likely due to warming and rapid cooling of upper water layers in this pond, as described above for DO. The existing TBEL-based TSS limits are a 50 mg/l monthly average and a 75 mg/l daily maximum. However for both TSS and DO, the annual weekly sampling data as reported reflect the following: higher TSS and DO in late winter, and lower DO and TSS in summer.



6 NYCRR § 703.2, as it applies to Class C receiving waters, does not set TSS limits, but requires "no impairment of other (receiving water) usages". The Class C receiving water requirement applying to 'usage' includes fish propagation and survival, without numerical TSS restrictions.[2] Impact on fish propagation, for

[2] Moderate fish impact from ambient TSS has been associated with levels in the range 30-85 mg/l (Wilber, 1983);and it had been recommended that if background levels are below 25 mg/l TSS, *induced* TSS concentrations should not exceed background by over

instance juvenile fish survival, may be assumed for TSS levels above 25 mg/l TSS for a specified period; for instance 25 mg/l background for over 24 hours. This would suggest that the existing 50 mg/l TSS limit might be protective if not exceeded for more than a day during the most vulnerable periods. The maximum TSS levels cited in the previous paragraph from facility monitoring would not be indicated to be safe for fish propagation and survival. However the receiving water, Tributary to Beaver Creek, would not necessarily be an applicable habitat, depending upon the length of stream affected by TSS levels. For stream flows below those shown above, and with short-term pond turnover conditions as described, current TSS limits may not ensure safety depending upon stream background and usage restrictions.

TOGS 1.3.1 further provides that for intermittent flow, or where little or no stream flow exists for dilution, a general approach is to apply intermittent stream effluent limits (ISELs); for which the daily maximum TSS representative of the highest degree of treatment for domestic waste is 10 mg/l. This limit would not be appropriate based upon TSS levels for this industrial facility. Absent operational or technology change that would reliably reduce effluent TSS, the TBEL-based TSS limitation must be based upon choice of suitable stream flows. As suitable stream flow levels could not be established from available information, no change of TSS requirements could be made; therefore existing TSS limitations are retained, to prevent backsliding.

Mercury – See WQBEL section below.

2. WQBELs & Anti-Degradation:

In addition to the TBELs previously discussed, the NYSDEC evaluated the discharge to determine compliance with 6 NYCRR § 703.3; and also Clean Water Act (CWA) Sections 101 and 301(b)(1)(C), and 40 CFR 122.44(d)(1). These require that permits include limits for all pollutants or parameters which "are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." The limits must be stringent enough to ensure that water quality standards are met and must be consistent with any available waste load allocation (WLA).

The procedure for developing WQBELs includes knowing the pollutants present in the discharge(s), identifying water quality criteria applicable to these pollutants, determining if WQBELs are necessary (reasonable potential), and calculating the WQBELs. Factors also considered in this analysis include available dilution of effluent in the receiving water, receiving water chemistry, and other pollutant sources. If the expected concentration of the pollutant of concern in the receiving water may exceed the ambient water quality standard or guidance value then there is reasonable potential that the discharge may cause or contribute to a violation of the water quality, and a WQBEL or WLA for the pollutant is required.

Antidegradation Policy: New York State implements the antidegradation portion of the CWA based upon two documents: (1) Organization and Delegation Memorandum #85-40, entitled "Water Quality Antidegradation Policy," signed by the Commissioner of NYSDEC, dated September 9, 1985; and, (2) TOGS 1.3.9, entitled "Implementation of the NYSDEC Antidegradation Policy – Great Lakes Basin (Supplement to Antidegradation Policy dated September 9, 1985)." A SPDES permit cannot be issued that would result in the water quality criteria being violated. The permit for the facility contains effluent limits which ensure that the existing beneficial uses of the receiving waters will be maintained.

The following provides the WQBEL analysis for each pollutant present in the discharge(s). Anti-degradation analysis which justifies applying water quality standards of a higher classification is noted below, if applicable. Refer to Section II-B above for information on discharge location, receiving water information (class, dilution,

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25 mg/l for any 24-hr. period, or exceed background by over 5 mg/l for TSS inputs lasting over 1 to 30 days (Guide to Selection of Sediment Targets for Use in Idaho TMDLs; Rowe, et. al., June 2003). Background TSS values for Beaver Creek, Wayne County, NY, are not available for a comparison.

chemistry), and the existence of any TMDLs. A summary of this analysis is provided in the *Pollutant Summary Table* at the end of this fact sheet.

Pollutant-Specific WQBEL & Anti-Degradation Analysis:

Stream Flow Variation and Total Seasonal Discharge Considerations
The facility has had effluent flow limit of 0.1 mgd, with discharges limited to only during two months (60 days) of the year: March and April. The flow limitation is based upon a previous Department water quality review (1994), which considered seasonal months when flow in the Tributary to Beaver Creek would be sufficient, based upon an estimated minimum flow (based upon the ratio of the Tributary's watershed area to that of the main stream, Beaver Creek which drains into Lake Ontario).

Examination of all available literature, and communication with the USGS on possible approaches to establishing a credible flow regime for Beaver Creek tributaries; confirmed that there were no reliable information or methods to determine critical flow: stream gauges were not near enough, and no flow statistics were available for the Beaver Creek watershed; and the relative size of the Tributary's minor watershed (about 0.3 sq. miles area, 0.9 miles long) compared with Beaver Creek (12 sq. miles, 9.1 miles long) made relative area methods unreliable. Absent either long-term annual base or seasonal flow data, no critical flow assumption could be made. Therefore stream condition was treated as intermittent, with critical stream flow at 7Q10 = 0 cfs. This also meant that the requests for reconsideration of rate or duration limitations for the discharge could not be addressed through the traditional approach, as long as essential stream flow data was not available.

Water quality analyses for this draft permit therefore addressed meeting requirements for the Class C receiving water through a goal of meeting the minimum dissolved oxygen requirements of 6 NYCRR § 703.4, which a minimum DO value of 4.0 mg/l for the Class C fresh surface water. Likely background water quality characteristics such as biological oxygen demand were obtained from State records for surface water within the facility area. With facility discharge quality statistics and likely Beaver Creek background water quality conditions, suitable ultimate oxygen demand (UOD) limitations to meet the Part 704 requirements have been developed, for various representational seasonal temperature regimes, and at the BOD decay (deoxygenation) and re-aeration rates shown; are tabulated below.

BOD Decay & Re-Aeration Rates vs. Temperatures

BOD Decay Rate (k_1) & Reaeration Rate (k_2) at 20 deg. C		Average Seasonal Temperature for Receiving Water			Allowable UOD
k_1 (20°C)	k_2 (20°C)	Degrees, C	$k_1 - k_D$	$k_2 – k_a$	milligrams/liter
0.23	0.46	25	0.1887	0.5067	19
0.23	0.46	20	0.1500	0.4500	25
0.23	0.46	10	0.0948	0.3550	42
0.23	0.46	5	0.0753	0.3153	55

Allowable Seasonal UODs

Allowable UOD, mg/l	Avg. Seasonal Temperature, ºC	Seasonal Period	Water Quality Review Dates	Current WQ Reviews, 1/2013
19	25	Summer	6/20/2005 (A. Mirza)	
25	20	April	7-20-1994 (NA); 6/20/2005 (A. Mirza)	A. Mirza, P. Miller*
42	10	March	7-20-1994 (NA); 6/20/2005 (A. Mirza)	A. Mirza, P. Miller*
55	5	Winter	6/20/2005 (A. Mirza)	

* No appreciable new differences were found for the UOD requirements.

Reporting of UOD as the sum or total of biological and nitrogenous oxygen demand is typically estimated from measured values of the 5-day biological oxygen demand (BOD_5) and nitrogenous oxygen demand, as shown in Footnote 2, on page 4 of the permit, and below:

Therefore monitoring for these parameters, with calculation and reporting of UOD, is recommended. The higher UOD value of 42 mg/l, shown for March in the table above, is considered sufficient to protect water quality.

Monitoring Parameters

Monitoring of Outfall 01A provides information on the raw influent as described earlier in this Fact Sheet. Monitoring parameters for all listed outfalls are described below.

Flow: Outfall 01A, and Outfall 001. Also Outfall 002, for sanitary wastewater discharge to the onsite septic system leach fields; and for Outfall 003 Non-Contact Cooling plus Stormwater. Flow monitoring at Outfall 004 (runoff) is not recommended under permit limitations (see discussion under TBELs, above).

pH, Standard Units (SU), Range 6.5-8.5, revised: Outfalls 01A, 01B, 01C, 01D, and 001.(6 NYCRR § 703.3, Class C waters).

Settleable Solids, mL/L: Outfalls 01A, 01B, 01C, and 01D (6 NYCRR § 703.2, Class C waters).

Carbonaceous Biological Oxygen Demand ($CBOD_5$), mg/l; Outfalls 01A, 01D and 001:
Monitoring, at the existing frequencies of 1/week at Holding Pond #3(Outfall 01D) and at 1/month at final Outfall 001 is recommended. Calculations of monthly and annual mass loadings are retained as outlined in Footnotes 3 – 5 of permit Page 4.

Outfall 001: Calculated BOD_5(lbs/day, lbs/month average, and lbs/year): Method (calculated) retained from previous permit.

Total Kjeldahl Nitrogen: Monitoring is recommended, at the existing frequencies of 1/week, at Holding Pond #3, for Outfall 01D.

Ultimate Oxygen Demand (UOD: Estimated based on $CBOD_5$ and TKN values as measured at Outfall 01D.

Dissolved Oxygen (DO); Aeration Units (Outfalls 01B and 01C; and at Outfall 001): Monitoring at the existing frequency of 1/week, is retained for aeration units Outfalls 01B and 01C. Monitoring at Outfall 001, at 1/week, is recommended (new), to apply during any discharge period.

Total Phosphorous, **Outfall 01D**; mg/l: Monitoring, at the existing frequency of 1/week, is retained from the previous permit.

Total Suspended Solids, mg/l; Outfalls 01A, 01B, 01C, and Outfall 01D: Monitoring, at the frequency of 1/week, is retained (6 NYCRR § 703.3, Class C waters).

Total Suspended Solids, mg/l; Outfall 001: The existing monthly average (50 mg/l) and daily maximum (75 mg/l) is retained. Monitoring, at the revised frequency of 1/week during the discharge period is retained. (6 NYCRR § 703.3, Class C waters).

Total Suspended Solids; lbs/day and lbs/year; Outfall 001: Calculated. Retained from previous permit.

Mercury.
Mercury was detected in the effluent at a level of **2.94** ng/L, which exceeds the water quality standard of 0.7 ng/L. Mercury is believed to be present in this discharge solely due to one or more of the following factors: presence in rainfall; water supply; and/or low level societal use of mercury. Considering the very low levels detected in this effluent, their likely source, and that the ubiquitous nature of mercury contamination currently makes it impractical for any dischargers to achieve the calculated water quality based effluent limit, it has been determined that no meaningful reductions in mercury can be achieved by this permittee. Therefore, no mercury effluent limits, minimization program, or routine monitoring requirements have been included in the permit. This is in accordance with New York State's mercury multiple discharge variance (MDV) in TOGS 1.3.10. Refer to the MDV for further detail.

B. Monitoring & Reporting Requirements

Section 308 of the Clean Water Act and federal regulations 40 CFR 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Additional effluent monitoring may also be required to gather data to determine if effluent limitations may be required. The permittee is responsible for conducting the monitoring and for reporting results on DMRs. The permit contains the monitoring requirements for the facility. Monitoring frequency is based on the minimum sampling necessary to adequately monitor the facility's performance. For industrial facilities, sampling frequency is based on guidance provided in TOGS 1.2.1.

C. Other Conditions Specific To This Permit

Best Management Practices (BMPs): The permittee is required to implement a BMP plan that prevents, or minimizes the potential for, the release of significant amounts of toxic or hazardous pollutants to state waters. The BMP plan requires annual review by the permittee. This requirement is new.

Water Treatment Chemicals (WTCs): The use and discharge of WTCs in requires the prior review and authorization by the NYSDEC. In most cases, a permit modification is not necessary. WTC usage must be logged and detailed in an annual report sent to the DEC. The permittee is not currently authorized to accept water treatment chemicals.

Discharge Notification Act: In accordance with Discharge Notification Act (ECL 17-0815-a), the permittee is required to post a sign at each point of wastewater discharge to surface waters. The permittee is also required to provide a public repository for DMRs as required by the SPDES permit. This requirement is being continued from the previous permit.

Special Conditions: Best Management Practices, as noted above, is added at pages 8-9, of the permit.

D. General Conditions Applicable To All Permits

The permit contains standard regulatory language that is required to be in all SPDES permits. These permit provisions, based largely upon 40 CFR 122 Subpart C and 6 NYCRR Part 750; include requirements pertaining to monitoring, recording, reporting, and compliance responsibilities. These "general conditions" of permits are typically specified, summarized, or referenced on the first and last pages of the permit.

OUTFALL & RECEIVING WATER LOCATION TABLE

Outfall Number	Latitude	Longitude	Receiving Water Name	Water Class	Water Index Number	Major/Sub Basin
001	43°10'37.83"	76°52' 58.43"	Tributary to Beaver Creek	C	Ont. 82-Beaver Creek & Minor Tribs.	03 / 02
002	43°10'36.81"	76°53' 10.82"	Groundwater	Class GA	NA	NA
003	43°10'35.56	76°52'59.07"	Tributary to Beaver Creek	C	Ont. 82-Beaver Creek & Minor Tribs.	03 / 02
004	43°10'37.15	76°53' 02.63"	Groundwater	Class GA	NA	NA

POLLUTANT SUMMARY TABLE(S)

Outfall No. 001	Seasonal Discharge from Holding Pond #3 to Trib. to Beaver Creek

Effluent Parameter (concentration in µg/l and mass in lbs/day unless otherwise specified)	Existing Effluent Quality				TBELs				Water Quality Data &WQBELs					Permit Basis
	Concentration		Mass		Conc.	Mass	Type	PQL	Ambient Criteria	Ambient Background	WQBEL			(T orWQ or NA)
	Avg/Max	95%/99%	Avg/Max	95%/99%				Conc.	Conc.	Conc.	Conc.	Mass	Type	
Flow Rate, units = GPD	Average	0.1665	0.0999		100,000		DA/DM	NA	7Q10 = NA, 30Q10 = , Dilution/Mixing = NA , Hardness = 290					T
pH (SU)	Minimum	7.1	8.5		6.5-8.5		Min/Max				6.5-8.5		Dmin/Dmax	WQ
Hardness, mg/l*	420				Monitoring not required.					290	No Limit			NA
$CBOD_5$, mg/l, Monthly Avg	26.85 / 43.6				Monitor	Monitor	DA/DM				TBEL ok.		DA/DM	T
$CBOD_5$, lbs/month, MA			92.3 / 163			Monitor	Calculated				TBEL ok.		Calculated	T
BOD_5, mg/l, Daily Max.	13.5 / 31				100 /150	Monitor	Monitor				TBEL ok.		DA/DM	T
$CBOD_5$, lbs/day, Daily Max.			16.43 / 51			Monitor	Calculated				TBEL ok.		Calculated	T
$CBOD_5$, lbs/year			417 /1160			Monitor	Calculated				TBEL ok.		Calculated	T
UOD, mg/l, lbs/day					42	38.0	Daily Max.				42.0	38	Daily Max.	WQ
TSS, mg/l	30.5 / 129.3				Monitor	Monitor	DA/DM				TBEL ok.		DA/DM	T
TSS, lbs/year, Annual Average			603 /1162		Monitor	4378	Calculated				TBEL ok.		Calculated	T
TSS, lbs/month			284 / 968		Monitor	Monitor	Calculated				TBEL ok.		Calculated	T
Settleable Solids, mL/L					0.1		DA/DM				TBEL ok.		DA/DM	T
Fecal Coliforms, #/100 mL*					NA		NA				No Limit			NA
TKN, mg/l					Monitor	Monitor	MA				TBEL ok.		MA	T
Dissolved Oxygen, mg/l,	10.9 / 18.7				Monitor		DMin/DA				TBEL ok.		DMin/DA	T
Temperature, deg. F*	35 / 86				Monitor		Min/Max				TBEL ok.		Min/Max	T

* **Sampling for permit application**.

Abbreviations: DA = Daily Average; DM = Daily Maximum; DMin = Daily Minimum; MA = Monthly Average; NA = Not Applicable or Not Available. Limitations: T = Technology-Based Limitation; TBEL = Technology-Based Effluent Limitation; WQ = Water Quality-Based Effluent Limitation.

POLLUTANT SUMMARY TABLE(S)

Outfall No. 01D	Flow in Holding Pond #3 (Grab Samples in Holding Pond #3)

Effluent Parameter (concentration in µg/l and mass in lbs/day unless otherwise specified)	Existing Effluent Quality				TBELs				Water Quality Data &WQBELs					Permit Basis
	Concentration		Mass		Conc.	Mass	Type	PQL	Ambient Criteria	Ambient Background	WQBEL			(T orWQ or NA)
	Avg/Max	95%/99%	Avg/Max	95%/99%				Conc.	Conc.	Conc.	Conc.	Mass	Type	
Flow Rate, units = MGD	Average	NA	NA		Not Measured		NA	NA	7Q10 = NA , 30Q10 = NA, Dilution/Mixing = NA					NA
pH (SU)	Minimum	3.5-8.1	Maximum	9.2 / 10	Monitor		DMin/Dam				Monitor		DMn/DMx	T
Temperature (F)	NA						NA				No limit		NA	NA
Dissolved Oxygen, mg/l	10.0*				Monitor		DMin/DA				TBEL ok.		DMin/DA	T
Hardness , mg/L, as $CaCO_3$	420*				-	-	-				No limit		-	
BOD_5, mg/l	124.5 /304.5	74.2/2371			Monitor		DA/DM				TBEL ok.		DA/DM	T
COD, mg/l	28*						NA				No limit		NA	NA
Oil & Grease, mg/l	1.5*						NA				No limit		NA	NA
TKN, mg/l	9.0 / 38.7	26.4/47.0			Monitor		DA/DM				TBEL ok.		DA/DM	T
TSS, mg/l	30.6/ 183	103 / 222			Monitor		DA/DM				TBEL ok.		DA/DM	T
Settleable Solids, mL/L	1.35 / 37.1	2.92/5.13			Monitor		DA/DM				TBEL ok.		DA/DM	T
Phosphorous, Total, mg/l	6.45/13.7	11. / 15.3			Monitor		DA/DM				TBEL ok.		DA/DM	T
Cyanide, mg/l*	<0.01*				Detection		NA				No limit		NA	NA
Phenolics, mg/l*	< 0.05*				Detection		NA				No limit		NA	NA
Fecal Coliforms, #/100 mL*	20*				Detection		NA				No limit		NA	NA
Coliform, Total, #/100 mL*	760*				Detection		NA				No limit		NA	NA

* **Sampling for permit application**.

Abbreviations: DA = Daily Average; DM = Daily Maximum; DMin = Daily Minimum; MA = Monthly Average; NA = Not Applicable or Not Available. Limitations: T = Technology-Based Limitation; TBEL = Technology-Based Effluent Limitation; WQ = Water Quality-Based Effluent Limitation.

POLLUTANT SUMMARY TABLE(S)

Outfall No. 01C | Flow: to Aeration Basin #2 (Grab Samples in Basin)

Effluent Parameter (concentration in µg/l and mass in lbs/day unless otherwise specified)	Existing Effluent Quality				TBELs				Water Quality Data &WQBELs					Permit Basis
	Concentration		Mass		Conc.	Mass	Type	PQL	Ambient Criteria	Ambient Background	WQBEL			(T orWQ or NA)
	Avg/Max	95%/99%	Avg/Max	95%/99%				Conc.	Conc.	Conc.	Conc.	Mass	Type	
Flow Rate, units = MGD	Average	NA	NA		Not Measured			NA	7Q10 = NA , 30Q10 = NA , Dilution/Mixing = NA					NA
pH (SU)	Minimum	14.9	91.7		Monitor- Internal Outfall		Range (Min/Max)				Monitor		Min/Max	T
Dissolved Oxygen, mg/l	19.2 / 25.5				Monitor		DMin/DMax				Monitor		DMin/DMax	T
Settleable Solids, mL/L	307 / 1186				Monitor		DA/DM				Monitor		DA/DM	T
Total Suspended Solids	1969 / 4774				Monitor		DA/DM				Monitor		DA/DM	T

Outfall No. 0-1B | Flow: Screen house to Aeration Basin #1 (Grab Samples in Basin)

Effluent Parameter (concentration in µg/l and mass in lbs/day unless otherwise specified)	Existing Effluent Quality				TBELs				Water Quality Data &WQBELs					Permit Basis
	Concentration		Mass		Conc.	Mass	Type	PQL	Ambient Criteria	Ambient Background	WQBEL			(T orWQ or NA)
	Avg/Max	95%/99%	Avg/Max	95%/99%				Conc.	Conc.	Conc.	Conc.	Mass	Type	
Flow Rate, units = MGD	Average	NA	NA		NA			NA	7Q10 = NA, 30Q10 = NA , Dilution/Mixing = NA					NA
pH (SU)	Minimum	12.3	15		Monitor		Range (Min/Max)				Monitor		Internal Outfall	T
Dissolved Oxygen, mg/l	50.6 / 104				2.0 Min /DA						2.0 / DA		Min/DA	T
Settleable Solids, mL/L	659 / 1861				Monitor						Monitor		Avg/Max	T
Total Suspended Solids, mg/l	1902 / 3885				Monitor						Monitor		Avg/Max	T

*** Sampling for permit application**.

Abbreviations: DA = Daily Average; DM = Daily Maximum; DMin = Daily Minimum; MA = Monthly Average; NA = Not Applicable or Not Available. Limitations: T = Technology-Based Limitation; TBEL = Technology-Based Effluent Limitation; WQ = Water Quality-Based Effluent Limitation.

POLLUTANT SUMMARY TABLE(S)

Outfall No. 01A	**Raw Influent through Screening (Screen House) – Grab Samples**

Effluent Parameter (concentration in µg/l and mass in lbs/day unless otherwise specified)	**Existing Effluent Quality**				**TBELs**				**Water Quality Data &WQBELs**					**Permit Basis**
	Concentration		Mass		Conc.	Mass	Type	PQL	Ambient Criteria	Ambient Background	WQBEL			(T orWQ or NA)
	Avg/Max	95%/99%	Avg/Max	95%/99%				Conc.	Conc.	Conc.	Conc.	Mass	Type	
Flow Rate, units = MGD	Average	0.226	0.45		0.10		DA/DM	NA	7Q10 = 0.45 , 30Q10 = , Dilution/Mixing =					T
pH (SU)	Minimum	12.3	15		Monitor		Range (Min/Max)				Monitor		Internal Outfall	T
Settleable Solids, mL/L	26.9 / 72.2				Monitor		DA/DM				Monitor			T
Total Suspended Solids, mg/l	592 / 1764				Monitor		DA/DM				Monitor			T
BOD_5, mg/l	3100*				Monitor		DA/DM				Monitor			T

* **Sampling for permit application**.

Abbreviations: DA = Daily Average; DM = Daily Maximum; DMin = Daily Minimum; MA = Monthly Average; NA = Not Applicable or Not Available. Limitations: T = Technology-Based Limitation; TBEL = Technology-Based Effluent Limitation; WQ = Water Quality-Based Effluent Limitation.

POLLUTANT SUMMARY TABLE(S)

Outfall No. 002 — Septic System Discharge to Groundwater

Effluent Parameter (concentration in µg/l and mass in lbs/day unless otherwise specified)	Existing Effluent Quality				TBELs				Water Quality Data & WQBELs					Permit Basis
	Concentration		Mass		Conc.	Mass	Type	PQL	Ambient Criteria	Ambient Background	WQBEL			(T or WQ or NA)
	Avg/Max	95%/99%	Avg/Max	95%/99%				Conc.	Conc.	Conc.	Conc.	Mass	Type	
Flow Rate, units = GPD	Average	**10,953**	**52,014**		Monitor		Meter	NA	7Q10 = NA, 30Q10 = NA, Dilution/Mixing = NA					T
pH, SU	Minimum	NA	Maximum	NA	No limit		Not measured				NA			NA

Outfall No. 003 — Non-Contact Cooling Water**

Effluent Parameter (concentration in µg/l and mass in lbs/day unless otherwise specified)	Existing Effluent Quality				TBELs				Water Quality Data & WQBELs					Permit Basis
	Concentration		Mass		Conc.	Mass	Type	PQL	Ambient Criteria	Ambient Background	WQBEL			(T orWQ or NA)
	Avg/Max	95%/99%	Avg/Max	95%/99%				Conc.	Conc.	Conc.	Conc.	Mass	Type	
Flow Rate, units = MGD	Average	NA	Maximum	NA	Monitor		Estimate	NA	7Q10 = NA, 30Q10 = NA, Dilution/Mixing = NA					T
pH, SU	Minimum	NA	Maximum	NA	Monitor		Range				Monitor		Min/Max	T
Temperature (F)	70.04 / 86.0	88.3/97.63			Monitor		Min/Max				Monitor		Min/Max	T

* Sampling for permit application. ** To Tributary to Beaver Creek.

Abbreviations: DA = Daily Average; DM = Daily Maximum; DMin = Daily Minimum; MA = Monthly Average; NA = Not Applicable or Not Available. Limitations: T = Technology-Based Limitation; TBEL = Technology-Based Effluent Limit; WQ = Water Quality-Based Effluent Limitation.

POLLUTANT SUMMARY TABLE(S) - CONTINUED

Outfall No. 004	Site Drainage to Subsurface Drainage (Tile Field)***

Effluent Parameter (concentration in µg/l and mass in lbs/day unless otherwise specified)	Existing Effluent Quality				TBELs				Water Quality Data &WQBELs					Permit Basis
	Concentration		Mass		Conc.	Mass	Type	PQL	Ambient Criteria	Ambient Background	WQBEL			(T or WQ or NA)
	Avg/Max	95%/99%	Avg/Max	95%/99%				Conc.	Conc.	Conc.	Conc.	Mass	Type	
Flow Rate, units = MGD	Average	Maximum	NA	NA	Monitoring not required.			NA	7Q10 = NA, 30Q10 = NA, Dilution/Mixing = NA					T
pH, SU	Minimum	Maximum			Monitoring not required.				Not required					T

* **Sampling for permit application**. *** Rainfall runoff from (north) building: drained to 4" grate connected to subsurface tiled drain field – recharged to groundwater.

Abbreviations: DA = Daily Average; DM = Daily Maximum; DMin = Daily Minimum; MA = Monthly Average; NA = Not Applicable or Not Available. Limitations: T = Technology-Based Limitation; TBEL = Technology-Based Effluent Limitation; WQ = Water Quality-Based Effluent Limitation.

Note: Outfall 004 will not be sampled, unless flow measuring device or estimation method is available.

Note I – Allowable Monthly Flows under the Minimum DO Limitation

The following discusses allowable effluent discharge into Trib. to Beaver Creek from Outfall 001, Fleischmann's Vinegar Company, North Rose, Wayne County, NY. Allowable effluent flow, during any month or season, would be affected by the following:

(a) the low or critical flow in the receiving water (Tributary to Beaver Creek or lower order stream if higher order Trib. is intermittent with the 7Q10 assumed as 0.0 cfs), and
(b) Beaver Creek is the main stream, and as a NYS Class C fresh surface water, has an absolute minimum dissolved oxygen (DO) standard of 4.0 mg/l: 6 NYCRR § 703.3.

Previous Water Quality Analyses
The receiving water, Tributary to Beaver Creek, Water Index Ont.-82; is a headwater (2^{nd} to 3^{rd} order tributary to Beaver Creek), is reportedly intermittent, and is a significantly minor watershed segment (0.3 mi^2) of the Beaver Creek (12 mi^2): Source, USGS StreamStats NY.

Previous water quality reviews assumed a zero critical flow (7Q10 flow) as conservative, considering intermittency of the receiving water: Tributary to Beaver Creek. The 7/20/1994 water quality analysis for the permit used the following approaches:

1. Flows - Beaver Creek, and from the Tributary: For Beaver Creek at the mouth, discharging to Lake Ontario; an average annual monthly flow of 12.4 cfs (8.014 mgd); or 1.1 cfs/mi^2 (watershed area of 11.27 mi^2or 7214 acres). March and April flows for Beaver Creek were assumed at 2.5 x average annual flow or 31 cfs (20.03 mgd), per month. The total distance from the outlet to the (Lake Ontario) mouth of Beaver Creek was estimated at 10.4 miles.

   For the Tributary to Beaver Creek, its watershed area was estimated at 75 acres or 0.1172 mi^2.This translated into an average annual flow of 0.13 cfs or 0.084 mgd). For the Tributary's stream flow, using the same multiplier as for the Beaver Creek main watershed (2.5 x average annual flow); March and April flows were assumed as 0.325 cfs (212, gpd). Peak flow from 1" of rain was assumed as at 3.1 cfs (2 mgd). Stream flows during suitable months was considered to total 0.45 cfs (0.291 mgd). Facility effluent discharge was considered as at 0.08 cfs (51,700 gpd).

2. Stream dilution, BOD_5, $CBOD_5$ and UOD: At the total Tributary flow of 0.45 cfs during March April months, and facility discharge flow at 0.09 cfs, the dilution would be 5.61. Facility BOD_5 was assumed at 100 mg/l from which $CBOD_u$ was assumed as 1.5 x BOD_5 = 150 mg/l; from which the allowable UOD would be 150/5.6 = 26 mg/l.

The second, later approach (1994), which considered continuous rather than the March-April discharge window, was the following:

The assumed flow for the Tributary flow was 0.0 cfs, and the assumed effluent inflow was 100,000 gpd (0.1547 cfs). The receiving stream's flow was assumed to be 0.30 cfs and its length was assumed to be 2.5 miles. Elevation change from the Outfall to discharge into Beaver Creek's discharge was estimated was 380-250 ft., or 130 ft. for a slope of 0.0099. This allowed for a travel time of 1.6 days. Streeter-Phelps DO-deficit model analysis showed that with a starting facility wastewater BOD_5 of 24 mg/l the 4.0 mg/l DO could be met; however constraints would be allowable ammonia (NH_3-N, 1.5 mg/l) and the critical temperature (25 deg. C) and pH (7.5). Continuous discharge was therefore not recommended

The most recent approach (2005) was the following:

> Iterative DO modeling using the Streeter-Phelps DO-deficit model; with Water Class DO set at the 4.0 mg/l absolute minimum; the critical temperature and pH; and elevation (380 ft.) adjusted DO saturation for the receiving water; a starting CBODu of 24-55 mg/l, and the 1.6 days travel time. However the restriction of discharge to March/April months, up to 100,000 gpd for 60 days only of each year; and the BOD_5 average/maximum limits of 100/150 mg/l, were retained, indicating that this most recent analysis provided no reason to change the requirements. However, the most recent requirements include monitoring for DO and TKN, within Holding Pond #3, just upstream of the Outfall 001 into which the Pond discharges at up to 100,000 gpd during the allowed months of March and April..

Consideration of the permittee's request involved review of any impact of increase in allowed flow to overcome operational constraints through (a) increase of the discharge period from the existing 2 months as it was based upon an earlier production period and the effluent quality has since changed; or (b) increase during the allowable months from 100,000 gpd, to between 120,000 and 150,000 gpd, with (c) the overall goal of capacity to discharge 6-8 million gallons/year. Specifics of the request are detailed below.

Permittee's Request

The permittee has specified that the following are desirable (Communication, E. Murphy, PE, 11/28/2012):

(a) Increasing or deleting the release window for Outfall 001, as the data does not appear to support the narrow window for effluent discharges
(b) Expediting the permit, using the existing permit limitation if need be;
(c) Increasing the daily discharge for Outfall 001 from 100,000 to 120,000 or 150,000 gallons per day to allow Fleischmann's Vinegar more flexibility to remove the water in a shorter amount of time if need be (i.e., should there be days in the window they are not able to pump/discharge due to elevated TSS due to pond turnover requiring flocculation);
(d) Increasing the annual discharge cap from 5.5 million gallons to 6 - 8 million gallons, for added operational flexibility and in case the requested capacity is needed in the future.

Review Approach

Both DO and TSS concentrations and their limitations, as related to stream flow conditions, need examination, to determine the need for change in any permit limitations including of TBELs or WQBELs; to determine whether the 'discharge window' can be expanded.

Data, from 3 years of Discharge Monitoring Reports for the facility showed the following:
Outfall 001: DO_{waste} = 9.0 mg/l (sampled only for permit application, 2012).
Outfall 001: Average BOD_5 = 22.6; maximum BOD_5 = 66.9 mg/l (3 yrs. of data).

Holding Pond #3, Outfall 01D: median DO = 10.4 mg/l (sample, permit application, 2012; saturation likely).
Holding Pond #3, Outfall 01D: BOD_5, 118 values: 95^{th} percentile: 38.4 mg/l, 99^{th} percentile: 81.8 mg/l.
Holding Pond #3, Outfall 01D: TKN, 118 values: 95^{th} percentile: 27.3 mg/l, 99^{th} percentile: 58.8 mg/l.

Data submitted by the permittee for the months of June through August 2012 also showed the following:
Outfall 001: Measurements (6 values): Avg. BOD_5, DM, = 13.5 mg/l; max. BOD_5, DM, = 31 mg/l; June-Aug.
Outfall 001: Measurements (6 values): Avg. BOD_5, DM, = 16.4 lb/d; max. BOD_5, DM, = 51 lb/d mg/l; June-Aug.

BOD_5, Holding Pond #3, 12values: 95^{th} percentile: 23.0 mg/l, 99^{th} percentile: 122 mg/l; June-Aug.
TKN, Holding Pond #3, 12 values: 95^{th} percentile: 8.3 mg/l, 99^{th} percentile: 20.1 mg/l; June-Aug.

Locational Assumptions, *source*: USGS StreamStats:

Elevation, Outfall 001: start elevation, 409 ft; end elevation 273 ft. (at junction, West, 2nd-order branch of Beaver Creek, 5.24 miles downstream); DO-sat = 10.8 (adjusted); 25 deg. C.

Illustrative Approach (minimum dilution for downstream 4.0 mg/l)

From the above and considering maximum 95th percentile values at Holding Pond #3 for conservative purposes:

BOD_5 = 38 mg/l, TKN = 27.3 mg/l
CBODu = (1.5 x BOD_5) + (4.57 x TKN) = 182 mg/l
UOD, for 4.0 mg/l DO in stream:= (CBODu/Dilution factor)
Dilution factor = X = (1.5, 2, 3, 3.5, 4, 4.5, 5, 5.5, 6) = MGD ratio
Streamflow Required: = [(CBODu/UOD) – 1] x Q_{waste}

$CBOD_5$ = 65 mg/l (or BOD5 – 5; TOGS 1.3.3):
$CBOD_{ult}$ = 1.5 x $CBOD_5$+4.57 x TKN.

NOD = 4.57 x (TKN/ NH_3-N) = 107 mg/l
UOD = CBODu + NODu

Estimations
EXCEL tabulation developed for use of the Streeter-Phelps DO deficit model allowed for calculation of allowable effluent flows, at various stream flows. Facility information, including from Holding Pond No. 3 (grab samples at Outfall 01D) just upstream of the Outfall 001 to the Tributary; was used to coordinate with expected stream flow while holding constant the absolute minimum DO allowed (4.0 mg/l) within the Class C receiving water.

Such an approach would be useful if such stream flows could be confirmed on a (monthly) *ad hoc* basis, presumably from simulation of a trace monthly flow specific the tributary based upon regional or actual Beaver Creek monthly flows. This could address the permittee's request for Department reconsideration of capacity to discharge effluent over a more extended period than the 2 months (March, April) now allowed each year, for past permit(s). However no such trace could be developed, or found in literature (see Conclusions).

Uncertainties include that (a) the un-guaged receiving water's natural variability is unknown and cannot be confirmed at the time of this review; (b) given natural variability, safe or allowable effluent flows (inclusive of any built flow controls) should be a reasonable fraction of, rather than the allowable flow, itself; (c) $CBOD_5$, NH_3-N, and NOD values should be such that effluent quality variability is represented.

Conclusions from the Review
Using a conservative DO-Saturated of 10.83 mg/l according to atm. pressure, and a conservative waste DO of 8.0 mg/l; and previous and current maximum BOD_5 (and TKN) values; and by varying receiving water flows from 0.3 to 3.0 cfs; it was indicated that to maintain the stream DO at not less than 4.0 mg/l minimum in the receiving water (at the mouth of Trib. to Beaver Creek); and to maintain safe flows within the receiving water existing/possible effluent quality; the following were concluded:

1. For safe summer low-flow conditions: a minimum stream flow-to-effluent dilution ratio of 28:1 to 31:1.

2. For year-round discharges (300 operational days/year), the lowest safe effluent flow allowable (at 7Q10 flow condition) would be 9,000 GPD.
3. To discharge 6-8 million gallons/year, effluent rates above 20,000 GPD would be allowable - however these flows would only be allowable when stream flows were above 1 CFS; therefore allowable effluent flow would continue to be limited according to monthly stream flows.
4. Approximation of monthly stream flow for the receiving water for Trib. to Beaver Creek was not possible, since: (a) No actual flow data for the receiving water could be found; and (b) there were no nearby stream gauges. A check with the USGS (12/06/2012) confirmed that the USGS stream gauges within the area were too distant, and the Tributary to Beaver Creek watershed too small; to provide any useful information on what the flows might be.
5. The latter case – no nearby stream gauges - also applies to the first or second reaches of the receiving water (larger tributaries of Beaver Creek, which receive flow from the sub-tributary into which the Fleischmann's Vinegar facility discharges).
6. The source of the original 7Q10 critical flow of 0.45 CFS for the receiving water segment could not be located. This had however been acceptable in the past, as it had been used by the Department. Determinations of allowable UOD as in this Fact Sheet would supersede the previous approach.

Water Quality Review: Temperature vs. Allowable Flow.
Given technology limitations for the production facility, and the intermittency of the Tributary to Beaver Creek, an approach to protecting quality of the receiving water is to:

(a) assume that for the first non-intermittent receiving water segment of the Beaver Creek tributary system (likely a 2nd or 3rd order tributary or stream) the dissolved oxygen standard for the stream class (2nd order Tributary to Beaver Creek, Class C; an absolute DO minimum of 4.0 mg/l) must be maintained;
(b) determine the average and maximum CBOD that can be allowed for this limitation, using DO demand modeling. Theoretical (ThOD) or ultimate oxygen demand can then be iterated, based upon the waste and stream nitrogenous and biological demand values.

The original water quality review had as its basis, the maximum UOD that could be allowed for the Fleischmann's discharge during seasons when stream flow was sufficient maintain the minimum standard (4.0 mg/l DO) within the receiving water. Assumptions were the following: A CBOD maximum of 55 mg/l, a stream temperature of 5.0 deg. C, a stream dissolved oxygen saturation (DO_{Sat}) based upon discharge outfall elevation; a waste or effluent dissolved oxygen of 11.0 mg/l; and a waste flow of 100,000 gpd.

Based upon the facility data reviewed for this fact sheet, the 95th percentile of 38 months of effluent flow data including for two months during which there were no discharges, the following were indicated:

Outfall	Flow, GPD, 6 values				BOD_5, mg/l: arithmetic, 6 values				TKN, mg/l			
	95th PCL	99th PCL	Avg.	Max.	95th PCL	99th PCL	Avg.	Max.	95th PCL	99th PCL	Avg.	Max.
01D, at Pond #3	NA	NA	0.167		NA	NA	**92.3**	163	26.4	47	**9.0**	38.7
001, at Tributary	0.167	0.280	**0.167**	0.099	NA	NA	13.5	**31**	NA	NA	NA	NA

A conservative approach is that Holding Pond #3 is the source of effluent to Outfall 001. Considering variability, an Outfall 001 maximum BOD_5 of 95 mg/l is assumed, and a TKN of 10 mg/l (not measured at Outfall 001). Other assumptions are:

DO-Sat.: 10.83 mg/l, at the 387 ft. elevation at Outfall 001; in North Rose, NY; with corrections: to mean sea level DO-sat for fresh water; and for atmospheric and water vapor pressure.

DO, Effluent: 8-10 mg/l (July 2009 through September 2012). DO = 9.0 mg/l assumed.

Flow: 0.2 mgd (200,000 gpd) assumed.

7Q10 flow: 0.45 cfs (≈ 0.300 mgd); adopted from a previous permit.

Stream temperatures at location, assumed (See Note 2, Air vs. Stream Temperature).

Air Temperatures vs. Stream Temperatures:
Weather (temperature, precipitation: http://www.weather.com/weather/wxclimatology/monthly/graph/14516) for the Town of North Rose indicates historical average monthly temperatures from -3°C in January to 22°C in July. Water temperatures approximated from these air temperatures using empirical models from a variety of streams (references not filed) suggest water (surface) temperatures from 1.0°C in January to 21°C in July; and for the allowed discharge months used in the existing permit (March and April of each year), the average stream (surface) temperatures suggested are 2°C and 8°C.

Stream Flow Sources and Patterns
Sources of flow to the tributaries of Beaver Creek are annual precipitation and snow melt, based upon historical studies of the Beaver Creek area. Historical weather information for the Town of North Rose, Zip Code 14516, where the facility is located, indicates that (a) the months with the highest number of days of over 0.1 inch of precipitation are April, May and June (3.18", 3.18", 3.7"), and September, October and November (4.04", 3.77" and 3.93"); and (b) the months for decline of snow depth are: January, maximum; late February through early May, maximum decline of snow depth. Source: North Rose, Zip Code 14516, Weather; http://www.weather.com/weather/wxclimatology/monthly/graph/14516. This information is qualitative and therefore cannot provide assumptions for actual receiving water flows. It can however suggest that moderate to peak flows should exist within the high-order and non-intermittent tributaries of Beaver Creek; within the months of March, April and May; and September, October, and November.

Stream Flows for the Receiving Water
As noted, for this review there was no available source of data on flow patterns (seasonal flows) within Beaver Creek or its tributaries; and according to the USGS (12/6/2012) the stream gauges nearest to the Beaver Creek watershed location are too distant, and the watershed for the Tributary actively receiving the effluent is too small, to develop any representative long term stream flows (*e.g.*, 7Q10). To confirm any representative stream flow, data collection would be necessary. Reliable flow information for Beaver Creek could however support any future Department total maximum daily loading analyses for the watershed.

LONG-TERM MONITORING DATA – FLEISCHMANN'S VINEGAR COMPANY: JULY 2009 - SEPTEMBER 2012

Outfalls	Parameter	Units	Average			Maximum			Existing Limitations	
			Avg. Left	Avg.-Right	Avg.-Actual	Max.-Left	Max.-Right	Actual Max	Average	Maximum
01A: Raw Influent to Screen house	Flow	Mgd	0.151	0.3	0.2255	0.21	0.69	0.45	Monitor	Monitor
	pH	SU	8.2	11	9.6	9	15.1	12.05	Monitor	Monitor
	Settleable Solids	mL/L	25.8	27.9	26.85	64.5	79.8	72.15	Monitor	Monitor
	TSS	mg/l	41.5	1143	592.25	844	2684	1764	Monitor	Monitor
01B: Influent to Aeration Basin #1	DO	mg/l	20.6	80.51	50.555	30.2	178	104.1	2.0, Min.	Monitor
	pH	SU	8.5	16.1	12.3	9.1	20.96	15.03	Monitor	Monitor
	Settleable Solids	mL/L	343	974	658.5	118	3604	1861	Monitor	Monitor
	TSS	mg/l	1321	2482	1901.5	2760	5009	3884.5	Monitor	Monitor
01C: Influent to Aeration Basin #2	DO	mg/l	19.1	19.2	19.15	24.8	26.1	25.45	2.0, Min.	Monitor
	pH	SU	10.8	18.9	14.85	12.2	27.1	19.65	Monitor	Monitor
	Settleable Solids	mL/L	177	437	307	617	1755	1186	Monitor	Monitor
	TSS	mg/l	1471	2467	1969	4538	5009	4773.5	Monitor	Monitor
01D: Influent to Holding Pond #3	BOD_5	mg/l	120	129	124.5	271	338	304.5	Monitor	Monitor
	TKN	mg/l	19.3	33.6	26.45	32.5	61.4?	32.5	Monitor	Monitor
	pH	SU	9.2	16.6	12.9	10	21.8	15.9	Monitor	Monitor
	Total Phosphorous	mg/l	11.5	14.4	12.95	15	19.5	17.25	Monitor	Monitor
	Settleable Solids	mL/L	2.85	4.3	3.575	4.97	7.96	6.465	Monitor	Monitor
	TSS	mg/l	103.2	233	168.1	219.3	603.9	411.6	Monitor	Monitor
001: Discharge to Tributary of Beaver Creek	BOD_5, Monthly Avg.	lbs/month						92.3-163	NA	Calculated
	BOD_5, Per Day	lbs/day			16.4			51	Calculated	Calculated
	BOD_5, Annual Avg.	lbs/year			417			1160	Calculated	Calculated
	BOD_5,Effluent Conc.	mg/l	14.6	39.1	26.85	20.3	66.9	43.6	100	150
	Flow	Mgd			0.167			0.099	Monitor	0.1
	pH	SU	7.1	7.6	7.35	7.9	8.2	8.05	6	9
	TSS	lbs/day			284			284-968		Monitor
	TSS, Annual Avg.	lbs/year			603			603-1162		3878
	TSS, Effluent Conc.	mg/l	15.2	45.7	30.45	48.5	210	129.25	50	75